Biologcally-inspired optimal video streaming over unpredictable wireless channel

Abstract

Recently there has been an alarming increase in demand for wireless video streaming and the need to provide the required quality of service (QoS) to support video applications is very crucial. It is obvious that supporting multimedia applications and services over wireless is very challenging task due to network heterogeneity and different QoS requirements. This requires low complexity and highly efficient optimization scheme to cope with the unpredictable channel condition. This paper is aimed at developing a biologically-inspired scheme using particle swarm optimization (PSO) to achieve optimal video streaming. The optimal parameters configuration selected provide the best settings to enhance the video streaming quality over wireless LAN. The scenario has been simulated in NS-2 environment, it clearly shows that the video quality has been improve by selecting best configuration to ultimately support video application. The PSO-based approach outperforms other techniques used to compare the performance of the develop scheme in terms of perceived video quality by more than 0.5dB. The experimental simulation has been used to verify the efficiency and potential application of the PSO in wireless multimedia networks.